

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended): A membrane interface probe apparatus comprising:

a membrane interface probe (MIP) ~~sensor~~ housing having a ~~larger~~ diameter than a conventional MIP ~~sensor~~ of at least about 2.125 inches.

Claim 2 (Currently amended): The MIP apparatus according to claim 1 wherein said ~~larger~~ diameter MIP sensor housing is adapted ~~for direct coupling to couple to larger diameter with a rod systems~~ system.

Claim 3 (Currently amended): The MIP apparatus according to claim 1 wherein said ~~larger~~ diameter MIP sensor housing ~~allows use of said MIP sensor is adapted to be coupled with larger capacity push and hammer systems.~~

Claim 4 (Currently amended): The MIP apparatus according to claim 1 wherein said ~~larger~~ diameter MIP sensor housing ~~allows use in situations where is adapted for a low sidewall support of the drive rod string exists applications.~~

Claim 5 (Currently amended): The MIP apparatus according to claim 1, wherein said ~~larger~~ diameter MIP sensor housing is adapted to include comprises two or more permeable membranes.

Claim 6 (Currently amended): A membrane interface probe apparatus comprising at least one of:
a membrane interface probe (MIP) sensor housing having two or more permeable membranes; and/or
a membrane interface probe (MIP) adapted to provide circumferential sensing.

Claim 7 (Currently amended): The MIP sensor housing of claim 6, wherein said two or more permeable membranes are arranged equidistant about a circumference of said MIP sensor housing.

Claim 8 (Currently amended): The MIP sensor housing of claim 7, wherein said MIP sensor housing is operative ~~to improve circumferential sensing and to increase likelihood of collection of volatile organic mass by said MIP sensor.~~

Claim 9 (Currently amended): A membrane interface probe apparatus comprising:
~~a membrane interface probe (MIP) sensor comprising at least one of adapted to improve watertight integrity by including undersea cabling a waterproof electrical coupling couplings and/or an O-ring mechanical couplings coupling, wherein at least one of said waterproof electrical coupling and/or said O-ring mechanical coupling improve watertight integrity.~~

Claim 10 (Currently amended): A modular membrane interface probe (MIP) apparatus comprising:
~~a modular membrane interface probe (MIP) sensor constructed from comprising a plurality of modular components allowing field serviceable replacement of any malfunctioning components of said plurality of modular components.~~

Claim 11 (Currently amended): The modular MIP apparatus according to claim 10, comprising at least one of:

an external barrel having a cavity; and/or

an inner core barrel assembly field-insertable into said cavity having a heater cavity, wherein said heater cavity is adapted to receive a field-insertable removable cartridge heating element.

Claim 12 (Original): The modular MIP of claim 10, wherein said modular MIP apparatus comprises a removable conductivity nose assembly.

Claim 13 (Original): The modular MIP of claim 10, wherein said modular MIP apparatus comprises a field-insertable removable cartridge heating element.

Claim 14 (Currently amended): The modular MIP of claim 10, wherein said modular MIP apparatus comprises at least one of a waterproof electrical connector and/or an O-ring seal.

Claim 15 (Currently amended): A membrane interface probe apparatus comprising:

a membrane interface probe (MIP) sensor comprising a an internal removable trap directly into the probe for the collection adapted to collect and/or concentrate concentration of one or more volatile organic compounds.

Claim 16 (Currently amended): The MIP apparatus according to claim 15, wherein said removable trap is adapted to enables detection of lower levels of detect concentration levels of said one or more volatile organic compound compounds, and specific identification of to specifically identify said compounds through post run chromatographic analysis.

Claim 17 (Currently amended): The MIP apparatus according to claim 15, further comprising:
~~providing for a calibrator calibration of adapted to calibrate said MIP sensor using chromatographic methods.~~

Claim 18 (Currently amended): The MIP apparatus according to claim 15, further comprising means for at least one of simultaneous trapping and/or concentrating of volatile organic compounds during MIP sampling and logging events.

Claim 19 (Currently amended): A membrane interface probe apparatus comprising:

a membrane interface probe (MIP) ~~sensor~~ comprising a heated transfer line from a body of said MIP ~~sensor~~ to a surface detector suite ~~minimizing~~ adapted to minimize loss of volatile organic compounds in a cold transfer line.

Claim 20 (Currently amended): A membrane interface probe ~~apparatus~~ system comprising:
a membrane interface probe (MIP); ~~sensor~~ comprising
an enhanced scanning solutions ~~module~~, module operatively coupled to said MIP; and
a sample introduction system coupled to said MIP adapted to ~~reduce overall equipment footprint and cost; to introduce calibration gases; gas~~ and to allow for simultaneous sampling of a volatile organic gas stream for ~~immediate~~ chromatographic analysis.

Claim 21 (Currently amended): A membrane interface probe ~~apparatus~~ system comprising:

a membrane interface probe (MIP) adapted to gather data; ~~sensor~~ comprising
a global positioning system (GPS) receiver adapted to identify a location of said MIP;
~~integrated with~~
a data acquisition system adapted to ~~allow simultaneous geo-referencing geo-reference of sampling points with sample~~ said data with said location.

Claim 22 (Original): A membrane interface probe system comprising:

a membrane interface probe (MIP) sensor comprising a mobile device in wireless communication with a data acquisition system enabling near real-time transfer of data from said MIP sensor to a base station.

Claim 23 (Currently amended): The MIP system of claim 22, wherein said mobile device comprises a graphical display and a control module adapted to operate said data acquisition system operation.

Claim 24 (Original): The MIP system of claim 22, wherein said mobile device is portable.

Claim 25 (Currently amended): The membrane interface probe apparatus-system of claim 20, wherein the enhanced scanning solutions module further comprises:

a flow control subsystem;
a detector subsystem coupled to said flow control subsystem;
a dryer/moisture separator subsystem coupled to said flow control subsystem;
a sampling subsystem coupled to said flow control subsystem; and
a software control subsystem coupled to at least one of said flow control subsystem, said detector subsystem, said dryer/moisture separator subsystem, andor said sampling subsystem.

Claim 26 (Currently amended): The membrane interface probe apparatus-system of claim 25, wherein said sampling subsystem of the enhanced scanning solutions module comprises at least one of:

- a sample loop;
- an absorbent trap; and/or
- a gas chromatography injection port.

Claim 27 (Currently amended): The membrane interface probe apparatus-system of claim 25, wherein the enhanced scanning solutions module further comprises at least one of:

- an exhaust;
- a pneumatic supply;
- a power supply;
- a bypass module;
- a feedback signal; and/or
- a pressure control subsystem.

Claim 28 (Currently amended): The membrane interface probe apparatus-system of claim 20, wherein the enhanced scanning solutions module further comprises:

- a detector subsystem;
- a sampling subsystem; and
- a software control subsystem coupled to said detector subsystem, and said sampling subsystem.

Claim 29 (Currently amended): The membrane interface probe apparatus-system of claim 28, wherein the enhanced scanning solutions module further comprises:

a dryer/moisture separator subsystem coupled to said software control subsystem.

Claim 30 (Currently amended): The membrane interface probe apparatus-system of claim 28, wherein said sampling subsystem of the enhanced scanning solutions module comprises at least one of:

a sample loop;

an absorbent trap; and/or

a gas chromatography injection port.

Claim 31 (Currently amended): The membrane interface probe apparatus-system of claim 28, wherein the enhanced scanning solutions module further comprises at least one of:

an exhaust;

a pneumatic supply;

a power supply;

a bypass module;

a feedback signal; and/or

a pressure control subsystem.

Claim 32 (Previously Presented): The membrane interface probe apparatus-system of claim 28, wherein said enhanced scanning solutions module comprises on-the-fly reconfigurability, and further comprises:

a plurality of operator-selectable modes.

Claim 33 (Previously Presented): The membrane interface probe apparatus-system of claim 28, wherein said enhanced scanning solutions module further comprises:

a plurality of pre-programmable operating modes that interactively reconfigures to perform any of a plurality of functions, subject to particular conditions.

Claim 34 (Currently amended): The membrane interface probe apparatus-system of claim 28, wherein said enhanced scanning solutions module further comprises:

an interface between said detector subsystem and a gas handling subsystem allowing insertion of at least one of: a sample, another detector, a flowpath, a flow path rate, a dryer, an exhaust, a feedback, and/or a trap.

Claim 35 (Currently amended): The membrane interface probe apparatus-system of claim 28, wherein said software control subsystem of the enhanced scanning solutions module comprises at least one of:

- a data logger;
- a sequencer;
- a valve control system;
- a monitor;
- a display; and/or
- a recording function.